

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

1                   1. (Currently Amended): A method for determining the presence of a microbial  
2 organism ~~an organism~~ of interest in a sample from another organism or organisms to be  
3 distinguished; said method comprising:  
4                   treating the sample, or a portion thereof, with at least one detectable molecular  
5 probe wherein the molecular probe or probes are peptide nucleic acid and are selected  
6 such that either:  
7                   (i) a target sequence of both the microbial organism of interest and the other  
8 organism or organisms reacts with the molecular probe in a way that  
9 produces detectable microbial organisms of interest and a detectable other  
10 organism or organisms to be distinguished; or  
11                   (ii) a target sequence of only the microbial organism of interest reacts with the  
12 molecular probe in a way that produces only detectable organisms of  
13 interest; and  
14                   contacting the sample, or a portion thereof, with a solid carrier to which has been  
15 immobilized ~~an antibody binding partner~~ such that if (i) applies then the antibody binding  
16 ~~partner~~ is chosen to be reactive only with the detectable microbial organism of interest  
17 but not reactive with the detectable other organism or organisms to be distinguished; but  
18 if (ii) applies then the ~~antibody binding partner~~ is chosen to be generally reactive with the  
19 detectable microbial organism of interest but also may be reactive with the other  
20 organism or organisms to be distinguished; and  
21                   determining the presence, ~~absence, position~~ or number of detectable microbial  
22 organisms immobilized to the solid carrier ~~and correlating the result with the presence,~~  
23 ~~absence, or number of the organisms of interest in the sample, or portion thereof.~~

2-3. (Canceled)

1                   4. (Original): The method of claim 1, wherein the detectable molecular probe is  
2 not labeled with a detectable moiety.

1                   5. (Currently Amended): The method of claim 4, wherein the detectable  
2 molecular probe is detected using a detectable antibody that specifically binds to a complex of  
3 the detectable molecular probe and the target sequence of the microbial organism of interest  
4 ~~probe/target sequence complex~~.

1                   6. (Original): The method of claim 5, wherein the detectable molecular probe is  
2 an unlabeled peptide nucleic acid.

1                   7. (Original): The method of claim 1, wherein the detectable molecular probe is  
2 labeled with a detectable moiety.

1                   8. (Original): The method of claim 7, wherein the detectable moiety is selected  
2 from the group consisting of: a chromophore, a fluorochrome, a spin label, a radioisotope, an  
3 enzyme, a hapten and a chemiluminescent compound.

9-10. (Canceled)

1                   11. (Currently Amended): The method of claim 1, wherein the solid carrier is  
2 selected from the group consisting of: a particle, a bead, a microscope slide, a micro titre plate,  
3 and a membrane ~~and an array~~.

12-14. (Canceled)

1                   15. (Original): The method of claim 1, wherein the sample, or portion thereof, is  
2 treated with the detectable molecular probe or probes before being contacted with the solid  
3 carrier.

1                   16. (Original): The method of claim 1, wherein the sample, or portion thereof, is  
2 contacted with the solid carrier before being treated with the detectable molecular probe or  
3 probes.

1                   17. (Original): The method of claim 1, wherein the sample, or portion thereof, is  
2 simultaneously contacted with both the solid carrier and treated with the detectable molecular  
3 probe or probes.

1                   18. (Currently Amended): A method for sorting and determining [[an]] a  
2 microbial organism or microbial organisms of interest in a sample or samples; said method  
3 comprising:

4                   treating the sample or samples, or a portion thereof, with one or more detectable or  
5 independently detectable molecular probes wherein the one or more molecular probes are  
6 peptide nucleic acid and are selected such that either:

7                   (i) the detectable probe or probes react with a target sequence of the different  
8 microbial organisms to be determined in a way that produces different  
9 detectable organisms that possess the same stain; or

10                  (ii) the independently detectable probes react with a target sequence of the  
11 different organisms to be determined in a way that produces different  
12 independently detectable organisms that possess an independently  
13 detectable stain; and

14                  contacting the sample or samples, or a portion thereof, with one or more different  
15 types of coded beaded supports, wherein each different type of coded beaded support can  
16 be independently determined in a suitable particle sorter and wherein to the coded beaded  
17 supports have been immobilized one or more antibodies ~~binding partners~~ chosen to select  
18 a particular organism or organisms such that the detectable or independently detectable  
19 organisms become selectively bound to the coded beaded supports as a result of the  
20 occurrence of specific antibody ~~binding partner~~ interactions;

21                    sorting the different types of coded beaded supports in ~~a suitable~~ the particle sorter;  
22                    and  
23                    determining the presence, absence, or number of detectable organisms, or each of  
24                    the independently detectable organisms, immobilized to each different type of coded  
25                    beaded support and either: (iii) correlating the result with the particular antibody binding  
26                    ~~partner~~ immobilized to each ~~particle~~ type of coded bead to thereby determine the  
27                    presence, absence or number of each of the different microbial organisms of interest in  
28                    the sample, or portion thereof; or (iv) correlating the result with the code for a sample  
29                    source from which the sample, or portion thereof, was derived to thereby determine the  
30                    presence, absence or number of each of the microbial different organisms of interest in  
31                    each different sample, or portion thereof.

19-20. (Canceled)

1                    21. (Original): The method of claim 18, wherein the detectable molecular probe  
2                    is not labeled with a detectable moiety.

1                    22. (Currently Amended): The method of claim 21, wherein the detectable  
2                    molecular probe is detected using an detectable antibody that specifically binds to a complex of  
3                    the detectable molecular probe and the target sequence of the microbial organism of interest  
4                    ~~probe/target sequence complex~~.

1                    23. (Original): The method of claim 22, wherein the detectable molecular probe  
2                    is an unlabeled peptide nucleic acid.

1                    24. (Original): The method of claim 18, wherein the detectable molecular probe  
2                    is labeled with a detectable moiety.

1                    25. (Original): The method of claim 24, wherein the detectable moiety is  
2                    selected from the group consisting of: a chromophore, a fluorochrome, a spin label, a  
3                    radioisotope, an enzyme, a hapten and a chemiluminescent compound.

1                   26. (Original): The method of claim 18, wherein the independently detectable  
2 probes are labeled with independently detectable fluorophores.

27-28. (Canceled)

1                   29. (Currently Amended): The method of claim 18, wherein the sample, or  
2 portion thereof, is treated with the detectable or independently detectable molecular probe or  
3 probes before being contacted with the one or more different types of coded beaded supports  
4 ~~solid carrier~~.

1                   30. (Currently Amended): The method of claim 18, wherein the sample, or  
2 portion thereof, is contacted with the one or more different types of coded beaded supports ~~solid~~  
3 ~~carrier~~ before being treated with the detectable or independently detectable molecular probe or  
4 probes.

1                   31. (Currently Amended): The method of claim 18, wherein the sample, or  
2 portion thereof, is simultaneously contacted with both the one or more different types of coded  
3 beaded supports ~~solid carrier~~ and treated with the detectable or independently detectable  
4 molecular probe or probes.

32-34. (Canceled)

1                   35. (Currently Amended): A method for sorting and determining different  
2 microbial organisms of interest in a sample; said method comprising:  
3                   treating the sample, or a portion thereof, with one or more detectable or  
4 independently detectable molecular probes wherein the one or more molecular probes are  
5 peptide nucleic acid and are selected such that either:  
6                   (i) the detectable probe or probes react with a target sequence of the different  
7 microbial organisms to be determined in a way that produces different  
8 detectable microbial organisms that possess the same stain; or

9 (ii) the independently detectable probes react with a target sequence of the  
10 different microbial organisms to be determined in a way that produces  
11 different independently detectable microbial organisms that possess an  
12 independently detectable stain; and  
13 contacting the sample, or a portion thereof, with a solid carrier array to which  
14 antibodies ~~binding partners~~ have been immobilized at unique identifiable locations such  
15 that the detectable or independently detectable microbial organisms are selectively bound  
16 to the locations on the array as a result of the occurrence of specific antibody binding  
17 ~~partner~~ interactions; and  
18 determining the presence, absence or number of the detectable or independently  
19 detectable microbial organisms immobilized at the many different locations of the array  
20 and correlating the result with the particular antibody binding ~~partner~~ immobilized to  
21 each location on the array to thereby determine the presence, absence or number of the  
22 different microbial organisms of interest in the sample.

36-37. (Canceled)

1 38. (Original): The method of claim 35, wherein the detectable molecular probe  
2 is not labeled with a detectable moiety.

1 39. (Currently Amended): The method of claim 38, wherein the detectable  
2 molecular probe is detected using a detectable antibody that specifically binds to a complex of  
3 the detectable molecular probe and the target sequence of the microbial organism of interest  
4 ~~probe/target sequence complex~~.

1 40. (Original): The method of claim 39, wherein the detectable molecular probe  
2 is an unlabeled peptide nucleic acid.

1 41. (Original): The method of claim 35, wherein the detectable molecular probe  
2 is labeled with a detectable moiety.

1                   42. (Original): The method of claim 41, wherein the detectable moiety is  
2 selected from the group consisting of: a chromophore, a fluorochrome, a spin label, a  
3 radioisotope, an enzyme, a hapten and a chemiluminescent compound.

1                   43. (Original): The method of claim 35, wherein the independently detectable  
2 probes are labeled with independently detectable fluorophores.

44-45. (Canceled)

1                   46. (Original): The method of claim 35, wherein the sample is treated with the  
2 detectable or independently detectable molecular probe or probes before being contacted with the  
3 solid carrier.

1                   47. (Original): The method of claim 35, wherein the sample is contacted with the  
2 solid carrier before being treated with the detectable or independently detectable molecular probe  
3 or probes.

1                   48. (Original): The method of claim 35, wherein the sample is simultaneously  
2 contacted with both the solid carrier and treating with the detectable or independently detectable  
3 molecular probe or probes.

49-59. (Canceled)